G.R.S. IX—5]

Previous references. 1922. **File No.** 32-22

Samy 33-21 861-2
" 86-13 861-9, 11-28 (
Samy 102-8 861-2 35
33-21 861-2.
Later references.
Secret file 65 4-5
Med 132 25 (1+2)

Present
R.V.
21/IV/45

GENERAL AND REVENUE SECRETARIAT.

Serial Nos.

P-29
E

Part B for 1 Jan 23.

SUBJECT

providing mr. Parthasarathy LRCP & S., etc. with a Suitable appointment in the Sanitary Department

3 To, The Compiler, Mysore Gazette
No. & 5114/& 12.1.23.

Notifies the posting of mr. Parthasarathy to the P.H. Institute Bangalore

To, The Samy Commr & Senior Secl. Agri No. & 5115-7/& 12.1.23
Forwards Copies

Printed on the Multigraph.

AS
22/1/23.

G. R. S. 11] 1922-23

GENERAL AND REVENUE SECRETARIAT.

(Sanitary)

NOTES.

File No. 32-22

FILE HEADING.

Providing Mr. P. Parthasarathi with a suitable place in the Sanitary Dept.

From

The Sanitary Commissioner in Mysore

No. C. 214 Dated 4.11.22 Received 7.11.22.

Diary No. 2335 Enclos. 5 Spare Copies. — Serial No. 1

BRIEF ABSTRACT OF LETTER.

(1) Recommends that Mr. P. Parthasarathi be posted to the Public Health Institute, in view of his special training & (2) submits for orders his application to Director-General Indian Medical Service, for the post of Asst. Director, Meteorological Dept., Govt. of India.

NOTES AND ORDERS.

Submitted for orders. Mr. Davis Dy. regarding the posting of Mr. Parthasarathi to the Vaccine Instt. has been submitted to the 2nd member on the 3rd instant

Dy 2228.

1/4/11/22

2) The papers may be got back & sent up along with papers re terms, &c. on which a scholarship was granted to Mr. Parthasarathy and the period for which he has to serve here &c.

dcs 7/11/22

NOTES—First Sheet.

G. R. S. III-2]

General and Revenue Secretariat.

File No. 32 of 19 22

Serial No. 5

It is informally ascertained that the file relating to the proposal to post Mr S. Parthasarathy to the Vaccine Institute, is still with the II Member of Council and cannot be returned.

Sanitary file no 102-18 8 6/22 relating to the deputation of Mr Parthasarathy to England is called for reference. There is nothing in the file regarding the period of service which this officer is bound to put in after his return from deputation.

C.B. Hub
18/11/22

Flag. C

(2) In a Council Note dated 23rd September 1922 in the linked file, it has been ordered that Mr. Fernandez and Mr. Parthasarathy should be retained in the Public Health Department, the latter as a supernumerary. The proposals submitted by the Sanitary

NOTE—Contn. sheet.

Serial No.

Commissioner are in accordance with the above decision which was duly communicated to that officer.

5) The points for orders in this file are the following :—

1) Posting of Mr. Fernandez as Health Officer of Bangalore City.— This depends upon the transfer of Mr. Peidpelt to the Medical Department. The pay to be given to Mr. Fernandez has to be settled and the Municipal Council may have to be consulted.

2) Posting of Mr. Parthasarathy to the Public Health Institute.— The Director of the Institute says there is no need for him there until the need for a Public Analyst under the Food Adulteration Regulation is felt later. It has been ordered in another connection that his services might be utilised for improving the quality of lymph in the Vaccine Institute.

6) If it is decided to post him to the Health Institute as now proposed, whether any promotion to his pay is called for has to be considered. He

G. R. S. III-21

General and Revenue Secretariat.

Fam File No. 82 of 19 22

Serial No.

seems to be inclined to prefer leaving our service and seeking employment elsewhere if there is no likelihood of his being given the maximum pay of his present grade. But it has already been decided that no case is made out for the grant of any promotion to him.

2) As regards his request for the transmission of his application to the Director General of the Indian Medical Service, it has to be remembered that he has not entered into any agreement of service at the time of the grant of scholarship. All the same, it is open to Govt to refuse to transmit the application and ask him to ~~resign~~ resign our service if he wants employment elsewhere.

Rev. Secy.) DCS 18/11/22

Secret Member) 18/11/22

3) Mr Pankhurst has received a special training at his own

NOTE—Contn. sheet.

G. R. S. III-21

General and Revenue Secretariat.

Jam File No. 32 of 19 21.

Serial No.

NOTE—Contn. sheet.

G. R. S. III-21

General and Revenue Secretariat.

File No. 32 of 19 22.

Serial No.

(1) I think it would be a great loss to lose the services of the trained staff &c. I do not see any other way.

(2) As the question whether a suitable officer can be found for him in the State the suggestion of the Dt. Magte. deserved in creation of a new appointment which I am not sure will be no doubt financially objectionable. The appointment, whether the Pani is really wanted or the best can do any useful work there. The answer is somewhat in personal character - & not based as far as I can see on considerations of efficiency

HD

22.11

11/22/11/22

NOTE—Contn. sheet.

G. R. S. III-21

General and Revenue Secretariat.

Sam File No. 32 of 1922.

Serial No.

12) After perusal of the Orders passed by the Member, this file will be sent to the Criminal Section.
Second Member) U/22/11/22

3963
22.11.22

11.11
22/11

Chief Secy with Compliments U/22/11/22

13) Accordingly
22/11

7/11/22

14) I agree that it will be a public loss if the services of Mr. P. Partha Sarathi after getting his Specialty training for certain classes of highly specialised work at first cost in foreign countries. He has had a good training in Bacteriology & he can perform on his research work with great advantage. The work need not necessarily be about certain diseases & ills concerning human beings but diseases relating to cattle, sheep etc can well be dealt with by the same officer.

Reed
25.11.22

NOTE—Contn. sheet.

Extract from the Proceedings of the 632nd *Meeting of the Council of His Highness the Maharaja, held at Bangalore on the* 30th November 1922. *19*

137. Subject. - Clause v of the schedule.

(b) Question of providing Mr. Parthasarathy, L.R.C.P., etc., with a suitable appointment in the Sanitary Department.

ORDER OF THE COUNCIL.

Mr. Parthasarathy may be appointed a supernumerary Assistant in the Public Health Institute for dealing with special bacteriological work including work for the Civil Veterinary Department. He may be given a salary of Rs.270/- in his present grade.

(Signed) A. R. BANERJI.

DEWAN OF MYSORE.

"EXTRACT"

Chief Secretary to Government.

WD 433—GPB—1,000—1-9-20

C 223

R. S. 12]

W D 473—GPB—1,000—12-9-18

General and Revenue Secretariat.

Sanc File No. 32 of 1922

Subject.- Question of providing Dr. Parthasarathy L.R.C.P., &c., with a suitable appointment in the Sanitary Department.

17 Extract from the Proceedings of the Council is put up.

Forwarded, with compliments, to the Financial Secretary to Government, under paragraph 9 * of the Government Order No. G. 17572-8—G. M. 676-17-1, dated 22nd June 1918.

By Order,

1/12/22

Chief Secretary to Government.

*9. (a) If the views expressed by the Financial Secretary in any case, whether original or un-officially referred, are not accepted by the Member of Government in charge, or by the Dewan and Members of Council, as the case may be, the file containing the discussions shall be sent to the Financial Secretary a second time, in order to enable him, in cases in which he considers that the orders proposed to be issued are opposed to financial rules of Government or to recognised financial principles or for other reasons of a financial nature, are open to objection, to record a respectful representation to that effect, which will be placed by the Dewan before His Highness the Maharaja for consideration.

(b) All cases sent to the Financial Secretary under this rule should be treated as immediate and returned to the Department concerned within three days of receipt.

4.12.22

18 Submit financial note and memo) 4/12

9/12

19 S. N. Submitted. 9/12

Dewan) 9/12

10/12

Final Note by the Second Member of Council.

20

Subject:—

Question of providing Mr. P.Parthasarathy, L.R.C.P., L.R.C.S., D.P.H., D.T.M., with a suitable appointment in the Sanitary Department.

Mr. P.Parthasarathy, L.R.C.P., L.R.C.S., D.P.H., D.T.M., who was deputed to England in the year 1919 to receive training in the Lister Institute of Preventive Medicine and to specialize in pure and applied Bacteriology, in the preparation of Sera and Vaccines &c., has lately returned and has to be provided with an appointment suited to his special qualifications. At the time of his deputation he was a District Sanitary Officer in receipt of a salary of Rs. 170/-(Rs. 165 plus 5 P.A in grade Rs. 150-15-360, and at present, he is getting Rs.210 a month. The posts of District Sanitary Officers have been lately abolished and according to the reduced staff provided for the Sanitary Department in Government Order No. L. 7567-82/Sany.55-21-1 dated 26th June 1922 there is no place for Mr. Parthasarathy in that Department. The Senior Surgeon who was therefore requested to provide for this Officer in the Medical Department is of opinion that the Public Health Institute is the only place where the Officer's training and aptitude can be turned to good account and that if posted to that Institution he would also be readily available for filling up casual vacancies in the charges of Health Officers and the dislocation of the arrangements in the Medical Department in such emergencies could be avoided. The Director of the Public Health Institute, on the other hand, says that no additional officer in the Institute will be necessary until the need for a Public Analyst for discharging the functions under the Food Adulteration Regulation arises.

On account of insecurity of his position here, Mr. Parthasarathy

113

G. R. S. IV—6]

Submitted to His Highness.

24

I submit herewith a Final Note by the Second .....

Member of Council on the ~~subject of~~ question of .....

providing Mr. P.Parthasarathy, L.R.C.P.,&c.,

with a suitable appointment in the Sanitary Department,

for His Highness' gracious approval.

Dewan.

10 DEC 1922

C 223. (15

G.R. S. III-2.]

General and Revenue Secretariat. | File No. 32 of 1922.

Serial No.

Question of providing Mr. P. Partha Sarthy, L.R.C.P. etc., with a suitable appointment in the Sanitary Department.

(*)

31. All urgent or confidential files returned with His Highness' orders may, in the absence of instructions or indications to the contrary, be ordinarily circulated to the Members of Council for perusal after the issue of orders.

33. The Secretaries concerned should see that orders in the cases referred to above are issued at once and that the files are returned immediately after to the Chief Secretary for circulation to the Members.

34. In all other cases, the files will first be circulated to the Members of Council at headquarters and then sent to the Secretariat concerned for the issue of orders.

Circulated to the Members of Council for perusal of

His Highness' orders before / after issue of orders. (*Vide* Rules 31, 33 and 34 or the Subsidiary Rules for the conduct of business of Council in the Manual of Council Rules and Procedure.)

Chief Secretary to Govt.

Through the Secretary to Government,
Revenue Department. 19/12/22

5053-5455
20.12.22

FIRST MEMBER OF COUNCIL

22-12-22

4.39 .22

SECOND MEMBER OF COUNCIL

22/12/22

THIRD MEMBER OF COUNCIL.

NOTE.—Contn sheet.

WD 923—GPB—500—3-11-21

The Revenue Secy. with Compliments.

22/12/22

2335

G. R. S. III-21

General and Revenue Secretariat. | Secy File No. 32 of 1922.

Serial No.

26) Forwarded with a draft &c
HK
27/12/22

27) A revised typed draft is submitted for approval.

28) Kind reference is invited to the last clause at the end of para 4 of the draft about the date from which the increased pay ~~etc~~ may be given to Mr. Parthasarathi. The date from which it should have effect has not been specified in the Council Resolution or the final note. It is presumed that it is intended ~~that~~ to give him the enhanced pay from the date of his rejoining duty on return from his deputation. If this presumption is not correct, the date will have to be ~~altered~~ either the date of order or the date of H.E.'s sanction viz 18th Dec. 1922.

CSR
6.1.23

Rev. Sec.)
Second Member) VJ 6/1/23

29) This may be adopted on a separate reference that may be made by the Comptroller after his return from leave.

30) Draft may be revised in fresh draft may be put up for signature. While returning the file the head of the Secretariat may also place for Mr Parthasarathi in accordance with

4/16
3-1-23

NOTE—Contn. sheet.

G. R. S. III-2]

General and Revenue Secretariat. | File No. 31 of 19 22

Serial No.

Special qualifications &c...
No specific mode made when persons
[illegible] Screen Service [illegible] Secretary
Ceased &c

[illegible]
12/1 8/1/23

31) A revised draft GO and a draft notification are put up. CSR 9.1.23.
Rev: Sec)

[illegible] 10/1/23 (Board Member) 10/1/23

32) Draft approved
[illegible]
11/1 11/1/23

33) Seen CSR 11.1.23

34) Papers for Communication to the order sub-d Evie Secretariat Secy's opinion (flag H.)
DS 12/1 12/1
[illegible] 12/1/23
2 Comptroller
Fin. DC 21/958 12/1/23

NOTE—Contn. sheet.

2035

G. R. S. III-2

General and Revenue Secretariat.

Camp File No. 32 of 1922

Serial No.	
2	To The Camp Comdt. The Senior Surgeon The Do of O.H. Institute The Comptt Hqrs Ist Sect The Do of 18 Lr No C 5043-7 dt 12-1-23. Directs the applt of Mr P Parthasarthi as a supernumerary Bott at the O.H. Institute and pay of Rs 270/- p.m. in the Grade. No 150-15-360.
3	To The Comptl Actts. No L 5114 dt 12-1-23. Notifies the posting of Mr P. Parthasarthi to the O.H. Institute, Adore To The Camp Comdt The Snr Surgeon The Comptt Do of 18 Lr No L 5115-7 dt 12-1-23 Do Complete Roll

NOTE—Contn. sheet

2795

Department of Public Health in Mysore.

OFFICE OF THE SANITARY COMMISSIONER
WITH THE GOVT. OF MYSORE,

Bangalore, dated the 14th Nov *1922.*

No. @ 214
Enc. 5

From Dr. H. B. Mylvaganam, F.R.C.S.,(ENGD),
~~A. K. PANI, Esq., D.P.H., etc.,~~
~~Offg.~~ *Sanitary Commissioner with the Government of*
H.H. the Maharaja of Mysore, BANGALORE.

To

T. E. Jeyaram Iyer, Esq., B.A.,B.L.,
Secretary to the Government of Mysore,
Revenue Department B a n g a l o r e.

Sir,

With reference to item No. I of your letter No. 2880/-Med. 4-22, dated the 12th October 1922, I have the honor to state that as Mr. Srinivasa Paidpet is proposed to be employed in the Medical Department as explained in letter No. G.C. 349-8, dated the 24th October 1922 addressed by me from the Medical Department, Mr. Fernandez may be posted as Health Officer, Bangalore City, to relieve Mr. Paidpet.

2. As regards the posting of Mr. Parthasarthi, I beg to submit that the marginally noted Government Orders sanctioning certain retrenchments in the Public Health Department have reduced the number of Gazetted Officers of the Department to six, Viz., two for the Public Health Institute, one for the Vaccine Institute and three for the charge of the Health Offices of Bangalore and Mysore Cities and the Kolar Gold Fields, leaving no room for an extra Officer.

No.G.25243-63/San.106-20-1 dated 30th June 1921.

No.L.7567-82/San. 55-21-1 dated 26th June 1922.

3. Leaving out the three Health Officers and the Vaccine Institute which do not require more than one Officer each the only Institution which can find for Mr. Parthasarthi's

21433 192

From

THE SANITARY COMMISSIONER IN MYSORE, BANGALORE.

To The Secretary to Government Revenue Dept.

Dated 14th Nov 1922

Despatched

Received

GEN & REV. SECTT
6 - NOV 1922

General No. C-2124 .

No.

Enclosure No. Enc-5 as dy

SUBJECT.

Recommending that Mr. P. Parthasarathy be posted to duly as the Public Health Institute.

work, having now returned fully equipped, the legitimate course for Government now is to afford him facilities for carrying on his line of work in the Public Health Institute, the only Institution where the required facilities exist. This will necessitate a slight modification of the recent retrenchment order by attaching one more Officer to Institution who, it may also be pointed out, will be readily available in filling up casual vacancies in the charges of Health Offices, without any need for dislocation of the arrangements in the Medical Department.

5. I am, however, not unmindful of the fact that the Public Health Institute is not under my control and that it is entirely beyond my province to offer suggestions affecting the staff of that Institution. At the same time I cannot help being painfully conscious of the absolute impossibility of giving full and proper employment to Mr. Parthasarthi either in any of the Hospitals under my control as Senior Surgeon or in any portion of the Public Health Department allotted to my administrative control as Sanitary Commissioner. I am therefore compelled to leave the matter entirely in the hands of Government for such orders as they may be pleased to pass.

6. In this connection I would also beg to submit for favor of kind disposal, an application addressed by Mr. Parthasarthi to the Director-General, Indian Medical Service, which he desires may kindly be forwarded with the support of Government, his main desire, as personally expressed to me, being apparently to secure elsewhere a place offering full scope for the particular line of work for which the Government have also generously helped him to acquire the necessary training, in case the local conditions do not permit of his securing the same here, with better prospects of pay and future promotions, Viz., with a start of ₹360/- as already submitted in my letter No. C. 33 dated the 25th July-1922. I solicit the favor

favor of early orders in the matter.

I have the honor to be,

Sir,

Your most obedient servant.

J. B. Smythe

Sanitary Commissioner, M.H.

Bangalore,
Dated the 14th ~~August~~ September 1922.

To

The Director-General,
Indian Medical Service,
S I M L A.

Sir,

I beg to apply for the post of Assistant Director in the Bacteriological Department, (Government of India) which, I hear, is now vacant. After obtaining the L.M.S., Degree of the Madras University, I entered service under the Mysore Government and was for a year employed in the Victoria Hospital, Bangalore, where I was attached to the Clinical Laboratory. I was selected to undergo training for the B.S.Sc., Degree and was deputed to Madras for the purpose with a Government Scholarship. When I obtained this Degree in the year 1916, I was posted as an Executive Health Officer for one of the districts and served in this capacity for 3 years. In 1920, I was deputed by Government to England to specialise in Bacteriology and Serology. I remained in England for 18 months and during thisperiod worked in the Lister Institute under Dr. Ledingham, F.R.S., in the University College, and in the School of Tropical Medicine, London. Enclosed I submit a copy of the testimonial granted to me by Dr. Ledingham together with a copy of the order of the Mysore Government referring in appreciative terms to my work while in England. The other qualifications I secured in England were L.R.C.P & S. of Edinburgh, the D.P.H. of Cambridge and the D.T.M. of the London University. I attended the Pasteur Institute in Paris for a week and gained a working knowledge of the mode of preparation of Sera and Vaccines from Dr. Weimburg. While working in the Lister Institute I was doing research on the Precipitation Test for Syphilis (Sachs Georgi). The results of my work in this connection

connection are published in the British Medical Journal. A reprint is submitted for ready reference.

2. On my return from England I was posted to the Public Health Institute, Bangalore as an Assistant Director. A copy of the testimonial given to me by the Director of this Institute is also submitted.

3. I venture to express the hope that you will be pleased to give me the opportunity I now seek for, for work in the Medical Research Department.

I beg to remain,

Sir,

Your most obedient servant.

P. Sanjeevamurthy.

THE LISTER INSTITUTE OF PREVENTIVE MEDICINE.

Chelsea Bridge Road

Chelsea Bridge Road,

London, 8th March 1922.

Mr.P.Parthasarathy became known to me during his study leave in "London" 1920-21 when he succeeded in gaining diplomas in Public Health and Tropical Medicine. In June 1921 he was given facilities at the Sister Institute for increasing his knowledge of bacteriological methods and during the succeeding six months he worked very assiduousl carrying out an extensive series of Sacks-beorgi tests in Syphilis the results of which will shortly be published and also an enquiry into the nature of certain acid-fast organisms isolated from cases of leprosy. The latter enquiry he proposed to continue on his return to India. Mr.P.Parathasarathy impressed me as a keen and intelligent worker and should, if given suitable opportunity and surroundings, be capable of carrying out good work in Bacteriology.

Sd/- J.B.G.Ledingham C.M.G.,F.R.S.,

Chief Bacteriologist.

Order No.L.4275-6/San.33-21-2 dated Bangalore 31-1-22.

Recorded with the observation that the report is an interesting record of good work done during the deputation.

Sd/- D.C.Subbarayappa,

For Secretary to Govt.,Rev.,Deptt.

Office of the Sanitary Commissioner with the Government of Mysore, Bangalore, Dated 1st February 1922.

M e m o, C.520-4

Copy is forwarded to Dr.P.Parthasarathy, Health Officer doing duty Vaccine Institute, Bangalore for information.

Sd/- A.K.Pani,

Sanitary Commissioner

D.O.No.

Office of the
Sanitary Commissioner with the Govt., of Mysore,
Bangalore, 10th July 1922.

Dr.P.Parthasarthi, L.M & S., and B.S.Sc., (Madras) who was Diatrict Health Officer in the State for over three years was sent by Government to England for advanced training in Bacteriology and Serology Besides undergoing the special training. he obtained Diplomas in Public Health and Tropical Medicine. Afterhis return from England he worked in the Public Health Institute, Bangalore where he had ample opportunity for various kinds of general and special work. In the line of special work he was investigating on the Aetiology and Pathology of a peculiar disease among sheep prevalent largely in some districts of the State.

He will be very useful in an Institute where he can do Research work. While in Europe he had the unique opportunity of working in the Lister Institute under Dr.J.C.Leddingham, C.M.G.,F.R.S., and contributed a paper on Sachs Georgi Reaction for Syphilis.

Sd/- A.K.Pani,

anitary Commissioner and
Ex-officio Director of
ublic Health Institute.

Reprinted from the BRITISH MEDICAL JOURNAL, *April 15th, 1922.*

THE RECORD OF A BRIEF EXPERIENCE WITH THE SACHS-GEORGI TEST.

BY

P. PARTHASARATHY, L.R.C.P., L.R.C.S.EDIN., D.P.H.CAMB., D.T.M.LOND.;

AND

MARY M. BARRATT, M.B., CH.B.GLASG.

With an Historical Account of the Development of Flocculation Tests for Syphilis,

BY

J. C. G. LEDINGHAM, C.M.G., M.B., CH.B., F.R.S.

(From the Lister Institute, London.)

OUR only excuse for placing the following notes on record is the fact that hitherto comparatively few collated results of parallel Wassermann and Sachs-Georgi tests have appeared from laboratories in this country. It will doubtless be the policy of the near future to institute carefully planned investigations on the great scale dealing with parallel complement-fixation and flocculation tests with a view to the selection of the best working methods and the correlation with clinical experience of what may prove to be the future routine serological test for syphilis. Pending the appearance of such massed statistics it may be of interest to record the capabilities of a flocculation test performed with material sent from outside sources to the diagnosis department of this institute accompanied by clinical data of varying completeness. Our series comprises only 265 serums forwarded to the institute during the period July to October, 1921. One of us (B.) carried out the routine Wassermann tests, while the other (P.) undertook, solely as a matter of research, the parallel flocculation tests.

METHODS EMPLOYED.

Flocculation Tests.

Two antigens were employed throughout ("D" and "L"), and the results with both are summarized. Antigen "D" was that of Bordet and Ruelens (1919), with the addition of cholesterin as recommended by Dreyer and Ward (1921), and the latter's technique was strictly adhered to so far as qualitative diagnosis was concerned, no attempt being made in this short series to probe the possibilities of quantitative evaluation. A dropping apparatus was used, and for the first 122 serums five tubes containing dilutions of serum varying from 1 in 1.25 to 1 in 26.4 in a total

volume of 25 drops were put up. Later, as the results from the first tube were indefinite, and as a large quantity of serum was required, the first tube was dispensed with. The mixture of antigen, saline, and serum was incubated at 37° C. for seven hours in a water-bath, and the results then read. One batch of antigen was employed throughout, and was preserved in a cool incubator at a temperature of about 22° C. Antigen "L" was simply an alcoholic extract of guinea-pig's heart muscle, to which was added a 1 per cent. solution of cholesterin in the proportion of 9 parts of heart extract to 1 of the cholesterin solution.

For the first 132 cases four tubes were put up, containing in a total volume of 26 drops a constant quantity of pure serum (6 drops) and 20 drops of a dilution of antigen varying from 1 in 20 to 1 in 80. For the remaining half of the series the antigen was kept constant in the four tubes (20 drops of a 1 in 40 suspension) and the serum was varied from 1 drop to 6, the total volume being made up to 26 drops.

The dilutions of serum in the tubes were therefore 1 in 3, 1 in 6.5, 1 in 13, and 1 in 26. The serums had been previously heated at 54° C. for 90 minutes. The tubes were incubated for five hours in a water-bath at 37° C. and the results were read 20 minutes after removal from the bath. They were reread after standing at room temperature for twelve to fourteen hours.

One batch of this antigen "L" was used throughout and experience showed that preservation in the cold (about 4° C.) was most satisfactory. Results with both antigens were recorded as "standard" (easily visible to the naked eye), "trace" (visible with lens), and "negative." At each test controls were used—namely, one Wassermann-positive serum, one Wassermann-negative serum, also previously tested positive and negative Sachs-Georgi samples. The antigen was also put up alone to exclude any non-specific precipitation.

Wassermann Tests.

These were performed with the antigen employed here—namely, an alcoholic extract of guinea-pig's heart muscle, to which is added before the test a 1 per cent. cholesterin solution in the proportion of 5 parts of extract to 4 parts of the cholesterin solution. Of this antigen a 1 in 90 dilution was used.

RESULTS.

Total number of serums tested	265
Of these, Wassermann positive	91
Positive flocculation ("L")	86
Positive flocculation ("D")	74

The degree of agreement may be otherwise expressed for the two antigens used, thus:

W+ L+	83	W+ D+	71
W− L−	171	W− D−	171
W+ L−	8	W+ D−	20
W− L+	3	W− D+	3
Total	265	Total	265

Thus, comparing the Wassermann and the flocculation tests by "L" antigen the total number of discrepancies in the series was 11, or 4.1 per cent., and in the case of "D" 23, or 8.6 per cent. The 91 positive Wassermann tests are classified as 70 "full positive," 10 "partials," and 11 "slight partials." Corresponding to this grouping the results with "L" and "D" are as follows:

	Total Positive.	Full Positive.	Partial Positive.	Slight Partial.
W	91	70	10	11
"L"	83	67	9	7
"D"	71	61	5	5

Thus 5 of the 8 missed positives with "L" antigen correspond to partial and slight positive Wassermann reactions, and half of those missed by "D" antigen are similarly accounted for. Only three serums yielded positive results with both "L" and "D" antigens,

while the corresponding Wassermann tests were negative. In all three the flocculation tests were recorded as "trace" reactions. One was from a latent case under treatment and in which the Wassermann test had been positive seven months previously; another was untreated and was stated to have a rash on trunk and perforation of palate (certainly a suggestive history); while the third came with no particulars.

Treated and Untreated Cases.

One hundred and fifteen of the series were stated to be treated cases, while 150 were entered as untreated or "no particulars." They are thus grouped:

	Total.	W+.	"L"+.	"D"+.
Treated	115	31	28	23
Untreated	150	60	55	48
Total	265	91	83	71

Primary Cases.—There were 20 cases of primary sore, in 9 of which spirochaetes were found. They yielded 9 positive results by all three methods.

Only 5 cases of nerve syphilis appear in the list, with a yield of one positive result with the Wassermann test, the corresponding flocculation tests proving negative.

Discussion.

It has been customary to take the discrepancy percentage as a measure of the efficiency of a flocculation test, and on this basis the results from our small series compare favourably with those recorded by other workers in this country who have published results within the last eighteen months. The discrepancy percentage, however, must in the meantime be regarded solely as a provisional measure of efficiency. The ultimate interpretation of discrepancies between complement-fixation and flocculation tests must, as Lesser (1919) has wisely pointed out in a paper dealing with results by three different methods (Wassermann, Meinecke, and Sachs-Georgi), rest with the clinician; whose record of the past, present, and future clinical course of the case and response to treatment will materially assist the serologist to appraise with some confidence the results from different methods and to eliminate those which prove unsatisfactory. The flocculation test may indeed prove, as Dreyer and Ward suggest, to fit the clinical facts even better than the Wassermann. Even now, with some sixteen years' experience of the Wassermann test, doubtful reactions are constantly occurring (especially in treated cases), and the correlation of these with parallel flocculation tests may serve to place the latter on a proper footing with respect to the clinical condition in the diagnosis of which it is designed to participate. So far, the agreement between Wassermann and flocculation tests carried out under the best auspices is remarkably good, and there is every reason to expect that further extensive experience of parallel tests in relation to syphilitic disease will lay a sure foundation for the flocculation test as the future test of election for syphilis.

THE DEVELOPMENT OF FLOCCULATION METHODS.

It is, we think, of prime importance that the profession should be familiar with the historical development of a test

which, now that the time seems favourable, may have a chance of establishing itself as the method of choice.

The Wassermann reaction dates from 1906, when the paper by Wassermann, Neisser, and Bruck appeared. This test, which at first was regarded as a true antigen-antibody reaction, was made possible by the demonstration in 1901 by Bordet and Gengou that, in the reaction between antigen and antibody, complement, if present, was fixed and consequently rendered unavailable for completion of haemolysis in a haemolytic system. In the following year (1907) it was shown by Landsteiner, Müller and Pötzl, Levaditi and Yamanouchi, and Porges that the effective substance which reacted with syphilitic serum was not present solely in organ extracts of luetic cases, but also in extracts of normal organs. Further, this effective substance was shown by them to be contained almost solely in the alcohol-soluble fraction, its association therefore with a lipoidal substrate being thus demonstrated. In this same year Michaelis noted in one single instance the formation of a visible precipitate when the extract of a luetic liver was brought in contact with a luetic serum. He concluded wrongly that this observation supported Wassermann's view of the specific character of the Wassermann test as a true antigen-antibody reaction. However, chance observation as it was, it gave the impetus to those attempts which have followed each other down to the present time to substitute for the complicated system of the Wassermann reaction a straightforward flocculation test involving two ingredients only. Following this isolated observation of Michaelis, Porges and Meier (1907, 1908) were the first to probe the possibilities of practical application, and, curiously enough, they chose to work, not with alcoholic organ extracts, but with commercial lecithin preparations (from egg yolk), the capacity of which to act as antigen in the Wassermann reaction had already been demonstrated. For many reasons, however, and more especially the instability of the lecithin suspensions and the occurrence of flocculation with normal serums, the use of lecithin was discontinued, and in later work by Porges, in collaboration with Elias, Neubauer, and Salomon (1908), resort was had to the use of sodium glycocholate, a salt possessing colloidal properties in solution, and which Levaditi and Yamanouchi had previously found to function as an antigen in the Wassermann test. Porges states that with this salt as antigen results were achieved which approximated in accuracy to those yielded by the Wassermann test; but it would appear that no thorough testing of flocculation methods was possible or practicable at this period, the Wassermann test in all its many modifications and improvements claiming the undivided attention of serologists and clinicians alike.

In the meantime the properties and mechanism of action of lipoids in serological reactions were being minutely investigated by numerous workers. Among them Sachs and Rondoni (1909), in the course of a study of the antigenic powers of lecithin in the Wassermann reaction, demonstrated an increased action of lecithin in the presence of sodium oleate,

and in the following year (1910) Browning, Cruickshank, and McKenzie demonstrated the remarkable action of cholesterin in increasing the amount of complement absorbed in the presence of a mixture of lecithin and luetic serum. Taking advantage of this discovery, Herman and Perutz (1911) mixed cholesterin with sodium glycocholate with the object of obtaining a more visible flocculum in the presence of syphilitic serum. This modification proved in Herman and Perutz's hands more sensitive than the original technique of Elias, Neubauer, Porges, and Salomon with the glycocholate alone, and yielded positive results in certain luetic cases when the original method gave no visible flocculation whatever. Meanwhile the flocculation of these lecithin suspensions again drew attention to the study of the inner mechanism of the Wassermann reaction. Was the complement really fixed by virtue of a precipitin reaction? No visible precipitation, apart from chance observation, was noted, which might account for the fixation of complement in the presence of alcoholic organ extract and luetic serum. Jacobsthal (1910), however, succeeded in demonstrating by the ultra-microscope the occurrence of floccular masses, the development and growth of which could be followed. He even attempted to employ the method practically, and stated that absolutely negative results occurred with non-luetic serums, but the percentage of positive results was not quite so high as in the Wassermann-positive series.

This work was followed up by Bruck and Hidaka (1910), who found that, by the aid of the centrifuge, precipitates, small indeed in bulk, could be obtained after some prolonged contact of alcoholic liver extract from foetal lues with luetic serum at a low temperature. With the object of making this precipitate more bulky, and consequently more visible, they added mastix to the system, and with this technique it was possible to obtain results approximating to the Wassermann, but a fair percentage of discrepancies occurred. The outcome of this form of study was to support strongly the view that the Wassermann reaction depends primarily on fixation of complement by an invisible precipitate (nascent precipitate) taking place in the earliest stage of the interaction between the alcoholic organ extract and the luetic serum. Apparently the only difficulty now was to secure an extract sufficiently sensitive to show visible precipitation in the presence of luetic serum. Hecht (1916) had definitely successful results, but the most recent and definitive stage in the development of flocculation methods as practical diagnostic aids was reached towards the end of the war, when Meinecke (1917) and Sachs and Georgi (1918) came forward with tested procedures, the latter of which (by Sachs and Georgi) is likely, either in its original or more possibly in some modified form, to become the method of election.

Meinecke's method is known as the two-stage method, and in its ordinarily practised form (the so-called salt method) is carried out on the following lines, purely technical details being omitted:*

* In flocculation procedures technical details are all-important, but those interested must refer to the original papers cited below.

An ordinary Wassermann extract in distilled water dilution, and containing no cholesterin, acts as antigen. Mixtures of inactivated serum and antigen in this salt-free medium are kept at incubator temperature for twenty-four hours. At the close of this period all tubes should show flocculation, whether they contain normal or luetic serum. The second stage now commences. A definite amount of a sodium chloride solution of previously determined strength is run into each tube. After an hour's further sojourn in the incubator the tubes are read, when it is found that in the Wassermann-negative series the flocculi are dissolved up, while the Wassermann-positive series remain permanently flocculated.

The salt concentration determined from previous experiment is that which will in one hour just completely dissolve the flocculi in the normal controls, so that differences can be elicited as between strongly positive, weakly positive, doubtful, and negative series.

The Meinecke reaction appears to be a perfectly straightforward and feasible test. It has been tried by many workers in Germany, generally in conjunction with the Wassermann and with the Sachs-Georgi reaction presently to be described. On the whole, however, it has found much less favour than the latter.

With their experience of complement-fixation technique, and their intimate knowledge of the comparative values of simple alcoholic organ extracts and purified lipoids as antigens, Sachs and Georgi (1918) chose as antigen an alcoholic extract of bullock's heart (hearts of other animals are, however, admittedly suitable), to which cholesterin as an absolutely indispensable adjunct is added. For the Wassermann test it is of course not indispensable, though sufficiently advantageous to make its use almost universal, but for the flocculation test its presence is essential for visible precipitation. The cholesterinized alcoholic extract is diluted with five parts of physiological saline. One c.cm. of a 1 in 10 dilution of the inactivated patient's serum is mixed with 0.5 c.cm. of the diluted extract along with the necessary controls. The tubes are left either for two hours at 37° C., and then overnight at room temperature, or they are kept continuously at 37° C. for eighteen to twenty hours. Positive reactions are read as +++, ++, and +, while the control serums remain clear or slightly opalescent. Both Meinecke's and Sachs and Georgi's reactions have been extensively tested in large series, and a summary of results in over 12,000 cases by various workers who compared the Sachs-Georgi with the Wassermann reaction in parallel series yielded a conformity percentage with the Wassermann of no less than 92.44 per cent. (Sachs and Georgi, 1920).

The most recent advance is that of Dreyer and Ward (1921), who follow in principle the method of Sachs and Georgi, but prefer as antigen, on the ground of greater stability, one recommended by Bordet and Ruelens (1919) for Wassermann tests. To this antigen, which, according to Bordet and Ruelens, can itself be flocculated in the presence of luetic serum, Dreyer and Ward add cholesterin. They claim that with a stable antigen and a refined technique

involving the quantitative expression of all degrees of flocculation, the test so conducted can lend itself to accurate standardization in terms of standard units.

Time and experience on the large scale will show how far this claim is justified and compatible with practicability in the hands of average workers, whose power to translate visual impressions into arithmetical language is notoriously variable. In treated cases particularly, the superiority of quantitative readings in flocculation tests over the purely qualitative evidence of the Wassermann would be warmly acknowledged, and it is to be hoped that the extensive parallel series which we understand are in contemplation may furnish important information on this point.

The above sketch is concerned solely with methods based on the mutual interaction of organic colloids and takes no account of the various and, on the whole, unsatisfactory tests which involve merely the precipitation of serum globulins by electrolytes.

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PROCEEDINGS OF THE GOVERNMENT OF
HIS HIGHNESS THE MAHARAJA OF MYSORE.

R e a d:-

Government Order No. 870/C.B.101-18-31 dated the 11th February 1919 sanctioning the deputation of Mr. P. Parthasarathy, District Sanitary Officer, for training in Bacteriology.

2. Government Notification No. L.4625-San.38-21-2 dated the 13th February 1922 posting Mr. Parthasarathy as Assistant - Director, Public Health Institute and Assistant Chemical Examiner to Government.

3. Government Order No. 7567-82/San.55-21-1 dated the 26th June 1922 directing retrenchment of expenditure in the Public Health Department and among other matters (1) abolishing the posts of District Sanitary Officers, (2) appointing Mr. A. K. Pani, as Director of Public Health Institute and Chemical Examiner to Government, and (3) reverting Mr. G. M. Dominick as Assistant Director and Assistant Chemical Examiner to Government, and requesting the Senior Surgeon to submit -- proposals for the absorption of Mr. Parthasarathy in the Medical Department.

4. Letter No. C.214 dated the 4th November 1922 from the Sanitary Commissioner in Mysore recommending the posting of Mr. Parthasarathy to the Public Health - Institute.

5. Letter No. R.O.C.880-H.C.337-5

dated the 5th December 1922 from the Director of Agriculture in Mysore requesting that Mr. Parthasarathy's services may be lent to the Civil Veterinary Department for a period of 6 months in the first instance for carrying on an investigation of a peculiar sheep disease

ORDER NO. L 5043-7

Bangalore, 12/14 January 1923

At the time of his deputation to England in 1919 Mr. P. Parthasarathy was a District Sanitary Officer on Rs. 170 (Rs. 165 plus Rs. 5 P.A) in grade 150-15-360. After receiving training in Bacteriology in the Lister Institute of Preventive Medicine, Mr. Parthasarathy returned in December 1921 and was posted by the Sanitary Commissioner to be in charge of the Vaccine Institute and then transferred as Assistant Director, Public Health Institute and Assistant Chemical Examiner to Government in the second of the orders read above. But owing to retrenchments sanctioned in the Government Order dated the 26th June 1922 also read above, the posts of the District Sanitary Officers and the appointment of a whole-time Sanitary Commissioner were abolished, ~~and~~ Mr. A. K. ~~Mosere~~ Pani, the then San. Comr. was appointed ~~and Dominick reverted~~ as Director, Public Health Institute and Chemical Examiner to Govt. his appointment counting against the post of Senior Asst Director, ~~and~~ Assistant Director, Public Health Institute and Assistant Chemical Examiner to Government and Mr. G. M. Dominick, who held the latter appointment was reverted as

~~respectively and~~ Mr. Parthasarathy had - no place in the Sanitary Department, and the Senior Surgeon posted him temporarily to the Victoria Hospital.

2. Mr. Parthasarathy has received advanced training in Pure and Applied Bacteriology and in the preparation of the sera and vaccine and has also qualified himself by securing the L.R.C.P & S of Edinborough, the D.P.H. of Cambridge and the D.T.M. of London. ~~He has special aptitude for analytical and research work.~~ The services of an officer possessing such special qualifications are urgently needed for the investigation of the bacterial diseases and the manufacture ~~of~~ and improvement of sera, etc., - as also for the investigation of some of the most dangerous cattle diseases in -- the Malnad. It is therefore necessary to retain Mr. Parthasarathy in service - and turn his training and aptitude to -- good account. ~~As the Public Health Institute is the only institution which can afford the required facilities for giving full scope for the particular line of work for which he was specially trained at the cost of Government.~~

3. Government are therefore pleased to appoint Mr. Parthasarathy as a Supernumerary Assistant in the Public Health -- Institute for dealing with Special Bacteriological work including the work of the Civil Veterinary Department on a pay

of Rs. 270 per mensem in his present grade of Rs. 150-15-360.

SECRETARY TO GOVERNMENT.
REVENUE DEPARTMENT

To

The Sany. Commr. in Mysore.
" Senior Surgeon in Mysore.
" The Director of P. H. Instt.
" Comptr. to Govt. Thro' Finl. Sectt.
" Director of Agriculture.

Copy to Agricultural Section.